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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------------|------------------|
| 10/813,087 | 03/31/2004 | Takahiro Ochiai | HITA.0535 | 5095 |
| 7590 | 03/23/2006 | | | |
| Stanley P. Fisher Reed Smith LLP Suite 1400 3110 Fairview Park Drive Falls Church, VA 22042-4503 | | | EXAMINER SANEI, HANA ASMAT | |
| | | | ART UNIT 2879 | PAPER NUMBER |
| DATE MAILED: 03/23/2006 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/813,087

Applicant(s)

OCHIAI ET AL.

Examiner

Hana A. Sanei

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/31/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-5, 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Konya et al (JP 7-72508).

Regarding Claim 1, Konya teaches signal lines (address line terminal film, 31a; see at least Figs. 4-5) which are formed on an upper surface side of a substrate (1); wiring layers (31b) which are formed such that the wiring layers electrically connect one-side signal lines and another-side signal lines which define regions for forming terminal portions of the signal lines therebetween while obviating regions where the terminal portions of the signal lines are formed; and an insulation film (24) which has holes (24b) at regions forming the terminal portions (31a) and is formed so as to cover the signal lines and the wiring layer (Fig. 6)

Regarding Claim 2, Konya teaches signal lines (address line terminal film, 31a; see at least Figs. 4-5) which are formed on an upper surface side of a substrate (1); an insulation film (24) which is formed such that the film covers the signal lines except for terminal portions of the signal lines; and conductive layers (31b) which extend in the extension direction of the signal lines such that the conductive layers traverse the terminal portions, wherein gaps (34) are formed between respective sides of the conductive layer parallel to the extension direction of the conductive layer, and the insulation film (24) and holes (24b) are formed in the signal lines at portions corresponding to the gaps along the extension direction of the signal lines.

Regarding Claim 4, Konya teaches gate signal lines (11, see at least Figs. 12-13), drain signal lines (16) and interlayer insulation films (23) which are formed between the respective signal lines (22) are formed on a display region, and a material of the insulation films (24, SiN, [0008]) is identical with a material of the interlayer insulation film (23, SiN, [0007]).

Regarding Claim 5, Konya teaches signal lines (22, see at least Fig. 13) which are formed on an upper surface side of the substrate (1); semiconductor layers (13) which are formed below the signal lines by way of a first insulation film (17) such that the semiconductor layers traverse the signal lines at terminal portions of the signal lines; a second insulation film (24) which is formed on the substrate such that the second insulation film also covers the signal lines and in which holes (24b, Fig. 6) are formed at regions thereof where the semiconductor layers are formed; and conductive layers (20) which have respective sides thereof in the extension direction of the signal lines

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arranged at both sides of the signal lines and are connected with respective semiconductor layers, wherein the resistance of the semiconductor layers is lowered [0016]. The applicant is claiming the product of a semiconductor including a method (i.e. a process) of lowering the resistance by introducing impurities there into using the signal lines as masks, consequently, Claim 5 is considered "product-by-process" claim. In spite of the fact that the product-by-process claim may recite only process limitations, it is the product and not the recited process that is covered by the claim. Further, patentability of a claim to a product does not rest merely on the difference in the method by which the product is made. Rather, it is the product itself that must be new and not obvious (see MPEP 2113). Accordingly, the method of lowering the resistance by introducing impurities there into using the signal lines as masks is not germane to the issue of patentability of the device/product itself and has not been given any patentable weight.

Regarding Claim 7, Konya teaches the display region includes thin film transistors (10) and a material of the semiconductor layers (13) is equal to a material of semiconductor layers (14) of the thin film transistors ([0004]).

Regarding Claim 8, Konya teaches the display region includes thin film transistors (10) and a material of the first insulation film (17, [0004]) is equal to a material of gate insulation films (12, [0004]) of the thin film transistors.

Regarding Claim 9, Konya teaches that the gate signal lines (11), drain signal lines (16) and interlayer insulation films (23) which are formed between the respective

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signal lines (22) are formed on a display region and a material of the second insulation film (24, [0008]) is identical with a material of the interlayer insulation films (23, [0007]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konya et al (JP 7-72508) in view of Ono et al (US 6356331 B1) in further view of Ono et al (US 2002/0047970 A1) hereinafter referred to as '970.

Regarding Claims 3, 6, Konya teaches the invention set forth above (see rejection in Claim(s) 2 & 5 above) and further teaches gate signal lines (11) and drain signal lines (16). Konya lacks the material of the signal lines being equal to a material of the gate signal lines. In the same field of endeavor, Ono teaches the material of the signal lines (CL, Col. 5, lines 22-25) being equal to a material of the gate signal lines (GL) in order to achieve the advantage of preventing an increase in the number of manufacturing steps (Col. 5, lines 25-27). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the materials, as disclosed by Ono, in the device of Konya in order to achieve the advantage of preventing an increase in the number of manufacturing steps.

Konya-Ono lacks the material of the conductive layer being equal to the material of the drain signal lines. In the same field of endeavor, '970 teaches the conductive layer (SD1; [0075]) being equal to the material of the drain signal lines (DL) in order to ensure the improvement in reliability of connection with the semiconductor layer AS stated supra ([0075]). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the materials, as disclosed by Ono, in the device of Konya in order to ensure the improvement in reliability of connection with the semiconductor layer AS stated supra.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hana A. Sanei whose telephone number is (571) 272-8654. The examiner can normally be reached on Monday- Friday, 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Examiner
Hana A. Sanei

S. Roy
3/20/06
Sikha Roy
Au2879